



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,347	12/06/2001	Zeev Smilansky	Q67625	6579

32588 7590 05/07/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

BALI, VIKKRAM

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 05/07/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

11

Office Action Summary

Application No.

10/003,347

Applicant(s)

SMILANSKY ET AL.

Examiner

Vikkram Bali

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

In response to the amendment filled on 2/20/2003, the amendments to the claims have been entered and the action follows:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 and 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Alumot et al (US 5699447).

With respect to claim 1, Alumot discloses: method for the analysis of surfaces, particularly for the detection of defects on semiconductor wafers, (see col. 5, lines 16-18, inspecting semiconductor wafers), which comprises checking individual pixels of the surface under control, (see col. 12, lines 1-7, explains the methodology of getting the reference by computing the type of each pixel "individual pixel" and the same methodology is performed during the inspection process, and "under control" is read as the area under investigation or inspection), and detecting suspected pixels by collecting the signature of each pixel, (see col. 5, lines 20-23, the inspection process performs a detection of the defect in the inspected pattern by comparing the image with the

Art Unit: 2623

reference, and the "signature" is read as the image), defined by the way in which the pixel responds to the light of a scanning beam, (col. 1, lines 15-19, states that the photo detector detects the presence of a particle by collecting the light scattered by the particles i.e. the light scattered is read as "pixel responds to the light scanning beam"), and determining whether said signature has the characteristics of a signature of a faultless or of a pixel that is defective or suspect to be defective, (see col. 5, lines 45-48 and col. 5, lines 56-59, the lines 45-48 detects the high probability of a detective region "suspect to be defective", and lines 56-59, detects the presence or absence of defect "pixel that is defective" or "faultless" as claimed); as claimed.

With respect to claim 2, he further discloses: analyzing the signature of each pixel to determine the presence of foreign particles, (see col. 1, lines 18-19, the photo detector detects the presence of a particle by collecting the light "signature of each pixel") as claimed.

With respect to claim 3, he further discloses: a pixel signature is defined by an array of signature components, each of which is a signal which corresponds to the intensity of the light scattered by the pixel in a fixed direction, (see col. 5, lines 52-55, the image is converted into a electrical signal "signature components", as the electrical signal is a signal that corresponds to the intensity of the light, because the CCD obtains the image as the light scattered of the wafer) as claimed.

Art Unit: 2623

With respect to claim 4, he further discloses: detecting defective or suspect pixels by a method chosen from among the group of comparing the pixel signature to a master signature, comparing parameters of the pixel signature to ranges of acceptable parameters, or determining the position of the pixel signature in a statistics of such signatures, (see col. 2, lines 34-36, for the broad view of the reference, that the comparison is done between the inspected pattern and the reference pattern “comparing the pixel signature to a master signature”, and the description of the procedure is detailed in the col. 8, lines 62-67) as claimed.

Claims 26 and 29 are rejected for the same reasons as set forth for the claims 1 and 3, because claims 26 and 29 are claiming similar subject matter as claims 1 and 3.

With respect to claim 27, he further discloses: a plurality of pixels is illuminated and checked concurrently, (see col. 5, lines 37-42, the plurality of light detectors detect the plurality of reflected light i.e. plurality of pixels is illuminated and the comparison takes place for these pixels, see col. 5, lines 18-21) as claimed.

With respect to claim 28, he further discloses: a defect list, (see figure 27, numerical 128, the classification of the defects) as claimed.

Response to Arguments

Arguments filed on 2/20/2003, applicant argues that the reference fails to disclose pixel based inspection, (see page 5, paragraph 1). Examiner disagrees with the applicant and would like to point out that the claimed limitations are given their broadest reasonable interpretations. In this case the reference does disclose inspecting semiconductor wafers, the inspection process performs a detection of the defect in the inspected pattern by comparing the image with the reference, and the "signature" is read as the image, (see col. 5, lines 20-23), the image is made up of pixels and if the image is compared to an image i.e. reference image, the pixels of the image are compared to the pixels i.e. pixel by pixel comparison.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2623

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

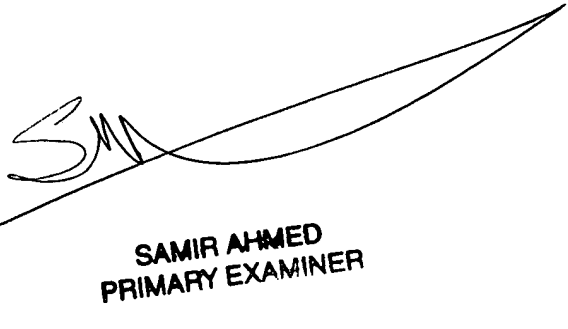
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9314 for regular communications and 703.872.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Vikkram Bali
Examiner
Art Unit 2623

vb
April 25, 2003



**SAMIR AHMED
PRIMARY EXAMINER**